

MatRIC Centre for Research,
Innovation and Coordination
of Mathematics Teaching



Centre of
Excellence in
Education

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Teacher in Mathematics and Physics

Coordinator of MatRIC's

- Video network
- Digital assessment network

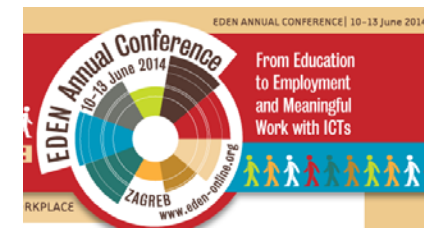


Digital assessment

The goal of this network is to connect university level mathematics teachers who are using, or thinking about using, computer aided assessment to support their students' learning.

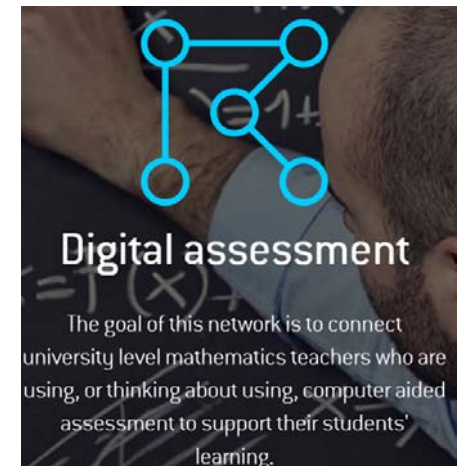
History – Activity 2014 **Digital Assessment Network**

- **MatRIC Launch conference** Gardermoen 12th March 2014. First presentation of Networking groups.
- Attended The 12th annual e-Assessment Question Conference and Exhibition, London 26-27 March 2014.
- Lecture at HiOA, Oslo 31. March 2014. Title: *An e-Learning Environment for Large-Scale Calculus Courses for Engineering*
- 2 Lectures at HiG, Gjøvik 22-23 May 2014. About: *Streaming videos and Digital Assessment.*
- MatRIC presentation at UiA, Grimstad 27 May 2014. Presenting Network *Video and Digital Assessment.*
- Paper presentation EDEN annual Conference, Zagreb 10-13 June 2014. Title: *Early testing of e-Exams in Calculus at University level.*
- MatRIC Loughborough visit 12. September 2014, Loughborough. Title: *Teaching Maths at University level – My perspective*
- Attended Jubileumskonferansen - Digital tilstand 2014, Norgesuniversitetet, 3 – 4 November, Oslo
- Attended Seminar om papirløs eksamen 17. november 2014, Uninett, HiST, Trondheim
- Workshop MyMathLab at **MatRIC First Annual Conference** Trondheim 27-28 November 2014
- Attended Online Educa Berlin 2014, 3 – 5, december 2014, Berlin



History – Activity 2015 **Digital Assessment Network**

- February - Sowiso Lecture by Marc Habbema in Kristiansand.
- Paper presentation 18. – 19. Mars – MNT 2015 Conference in Bergen. Title: *Erfaring med bruk av digital vurdering og videoforelesninger i matematikk på ingeniørutdanningen ved UiA.*
- Paper presentation 21. – 22. April. 8th IMA Conference in Loughborough. Title: *Use of new teaching methods and technology improves performance of engineering students in calculus.*
- May - Discussion panel at UiA «The road ahead» – Inspera.
- 1-3 June 2015, Bergen, MatRIC event - [Computer Aided Assessment in Mathematics, Colloquium](#)
- October - Discussion with Cisco Systems – “The road ahead” – UiA.
- Presentation 19. November – DTU , Copenhagen. Title: *Digital assessments and its possibilities, limitations and challenges.*
- November - Induction Course, NTNU, Trondheim.
- 2nd MatRIC annual Conference, 25 -27 November, Trondheim. *Computer Aided Assessment discussion at the end of the MatRIC conference*
- Attended the Adila Symposium , 30. November, Grimstad
- December - Aspects of mathematics education at technical schools and universities, METMAS, CET, Brno



History – Activity 2016 **Digital Assessment Network**

- Attended Workshop "Challenges in teaching mathematics to future engineers" in Brno 1 – 3.
- CAA colloquium (For invited Key persons from UK/Norway) 27- 28 April, University of Newcastle (Home of Numbas)
- 13. Juni Workshop CAA at SDU (Syd Dansk Universitet), Odense.
- Attended the 16th Annual EDEN Conference, 14 – 17 June 2016, Budapest. Norwegian meeting with Fleksibel utdanning Norge.
- Paper presentation at the 18th SEFI Mathematics Working Group Seminar, 27 – 29 June Gothenburg. Title: *New way of teaching and integrating Mathematics for engineering students in Electronics.*
- Attended the CETL MSOR Conference 2016, Loughborough University, 6-7 September 2016
- Attended the RAISE16 Conference: 'Excellence' in Student Engagement, Loughborough University, 8-9 September 2016.
- Presentation at EAMS Conference 13 -14 September Newcastle. «E-Assessment in Mathematical Sciences». Title: *Using CAA to set grades in mathematics courses for engineering students in electronics.*
- 3rd MatRIC annual Conference, 19-20 Oktober, Gardermoen. *Computer Aided Assessment discussion at the end of the MatRIC conference*

Parallel session-Room 1: New strategy in teaching Mathematics within electronics

Morten Brekke, University of Agder

In 2014 we started a project to strengthen students' achievement of learning outcomes of the bachelor programme in electronics through integration of mathematics within the study's technical subjects. The intention is that this will contribute to a better learning process and increased understanding of mathematics.

Parallel Session-Room 1: Inspiring Curiosity in Mathematics.

Are Jevne and Amar Duranivoc, University of Agder

Student presentation

How to do e-assessment well: Christian Lawson-Perfect, e-learning officer Numbas, School of Mathematics and Statistics, Newcastle University.

Usability should be considered at every stage of creating an assessment: the system used to access the question should be straightforward to use, and the questions themselves should be clear about what they assess and what the student needs to do. The question author's experience is also important.

History – Activity 2016 Digital Assessment

- November: Presented “*Flipped Maths*” to Renewable Energy meeting and Mechatronics meeting.
- Numbas** for Masterstudents in Teacher Education, 7. November, UiA. *MA-421 Digitale verktøy i matematikkundervisning* with Said Hadjerrouit

Numbas for Teacher Education 7th of November 2017

Numbas is an easy way to create online tests. A free web-based system helps you build the tests or exams you need to challenge your students.

Watch a demo at <http://www.numbas.org.uk/> to be well prepared when meeting up on Monday the 7th of November.

You will find the tests in Numbas we are going to use in Moodle at this web-address:

<http://agder-ikt82.uia.no/login/index.php>

You should by now have login information (username and password) to Moodle at your student-email.

When in Moodle;

Click on the course:

NUMBAS for Teacher Education

You will find there is three tests (the test are both in Norwegian and English)

Click on your preferred Test and do your best.

Test trinn 1 - 7

Your attempts

Attempt	Start time
1	Oct. 19, 2016, 10:24 a.m.

[+ Start a new attempt](#)

Click on ‘Start a new attempt’ and do your best

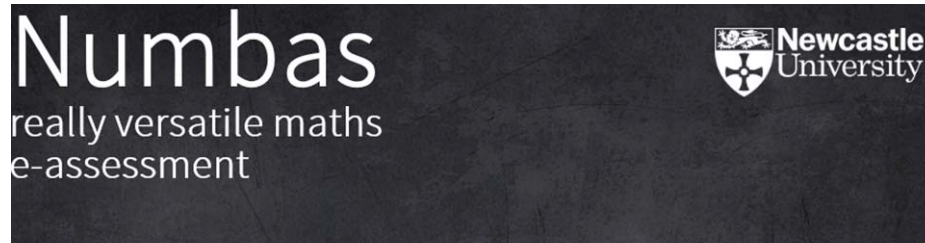
Your score will immediately be posted after submitting exam. You can also see your score on previous attempts by clicking on the test again.

Performance Summary

Exam Start:	Tue Nov 01 2016 09:07:49
Exam Stop:	Tue Nov 01 2016 09:10:28
Time Spent:	0:02:39

Your attempts

Attempt	Start time
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NUMBAS

Numbas is an easy way to create online tests. Our free web-based system helps you build the exams you need to challenge your students, complete with videos and interactive diagrams.

[See a demo](#)



What next????

Digital Assessment Network

- Collaboration with Alexander Lundervold, HiB with OpenEdx (Numbas? STACK? Or...)
- Continue with Numbas for Teacher Education with Said.
- Follow up on *CAA-Expert Group*. Meeting in Amsterdam April? 2017 hosted by André Heck, University of Amsterdam.
- More testing of Sowiso.
- Use “Flipped” and CAA in Statistics for Electronics and Computer Science, New course starting January 2017.
- Accepted paper to:

The goal of the project is that, under staff guidance, students will create a test in STACK for students in the following year. This is similar to “peer tutoring”, but involves peers in assessment design. We believe that it requires one to have a deeper understanding of a topic to make a test for another, and this is therefore a valid task for students themselves to seek to undertake.

Forslag til presentasjon på

The teacher (first author) and developer of STACK (fourth author) will evaluate the quality of work the first year student groups deliver. The question is whether this approach helps students to gain a better understanding of *integration*.

Development of teaching-modules in computational Mathematics and STACK in cooperation with students.

Morten Brekke, MatRIC, Universitetet i Agder
Amar Duranovic, Universitetet i Agder
Are N. Jevne, Universitetet i Agder
Chris Sangwin, University of Edinburgh



> MNT-konferansen 2017